

5.4.2 Coverage radius

A coverage radius is calculated for both the victim link and the interfering link. It is the R_{max}^{VLT}

for the victim link (VLR-VLT) and the R_{max}^{ILT} for the interfering link (ILR-ILT) (see Annex A13.1). The receivers will be randomly deployed within the area centred on the transmitter and delimited by the coverage radius if the non-correlated option is selected.

Three different modes are available for calculating the maximum radius .

- **User-defined radius** allows directly entering the maximum radius (See Annex A13.1.1);

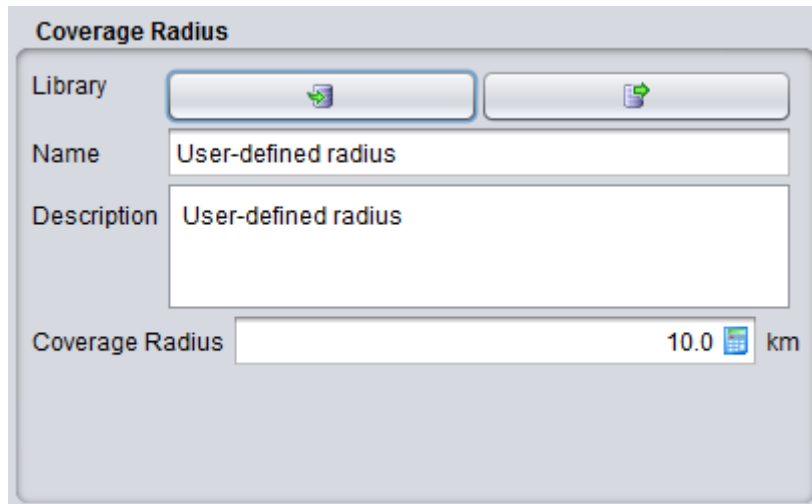


Figure 151: User-defined coverage radius dialog box

Table 16: Description on User-defined coverage radius

Description	Symbol	Type	Unit	Comments
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Coverage radius	R_{max}	Scalar	km	<p>The coverage radius defines the coverage of the system, i.e. the maximum distance between an ILT and a ILR or between a VLT and a VLR.</p> <p>The origin point of the coverage radius is logically the VLT or the ILT.</p>
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- The **noise-limited network** option will calculate the coverage radius based on the formula for noise-limited network. If this option is chosen, a set of input boxes will appear below allowing the user to enter specific parameters required for this calculation. In this case it is considered that the coverage of the transmitter is limited only by propagation losses and other elements in the link budget, with received signal operating at the sensitivity limit. The details of the calculation are given in Annex A13.1.2.

Coverage Radius

Library

Name

Description

Ref. antenna height (Rx) m

Ref. antenna height (Tx) m

Ref. frequency (Tx) MHz

Ref. power (Tx) dBm

Minimum distance km

Maximum distance km

Availability %

Fading Std. Dev. dB

Figure 152: Noise limited network coverage radius dialog box

The coverage radius in the noise-limited network is defined by the parameters of Table 17. Note that the input parameters for the Noise-limited network interface are set to zero by default in order to independently define the radius from some parameters set elsewhere in the link.

Table 17: Description of the Noise limited network coverage radius user interface

Description	Symbol	Type	Unit	Comments
Reference antenna height (receiver):	h^0	Scalar	m	The height used for coverage radius calculations. If a distribution is used to define the real height, the coverage radius would be different in each trial, here the value may be fixed.
Reference antenna height (transmitter):	h^0	Scalar	m	The height used for coverage radius calculations.
Reference frequency	fVLR	Scalar	MHz	
Reference power	PVLT	Scalar	dBm	
Minimum distance			km	
Maximum distance			km	
Availability			%	
Fading standard deviation			dB	
Reference percentage of time			%	

Traffic-limited network option will calculate the coverage radius, based on the formula for traffic-limited network. If this option is chosen, a set of input boxes will appear below allowing user to enter specific parameters required for this calculation (See Annex A13.1.3).

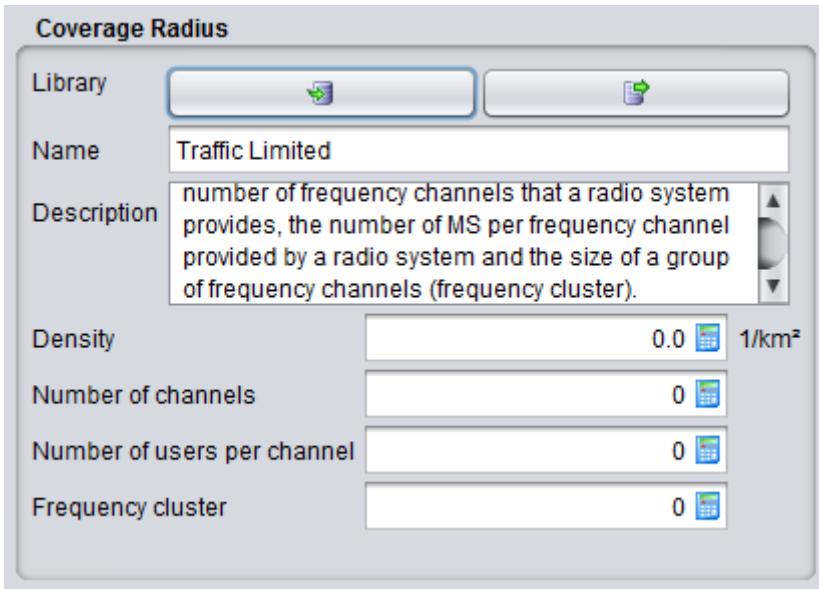


Figure 153: Traffic limited network coverage radius dialog box

Table 18: Description of the traffic limited network coverage radius user interface

Description	Symbol	Type	Unit	Comments
Density		Scalar	1/km ²	Maximum number of active transmitters per km ²
Number of channels		Scalar		Number of frequency channels of the system
Number of users per channel		Scalar		Number of MS per frequency channel
Frequency cluster		Scalar		Size of a group of frequency channels. See Figure 180 for illustrative details.

The consistency of this parameter should be verified against the sensitivity, so that if a receiver is placed at given distance (e.g. at the maximum coverage radius) the received power is higher than the sensitivity for a reasonable percentage of occurrences (availability).

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